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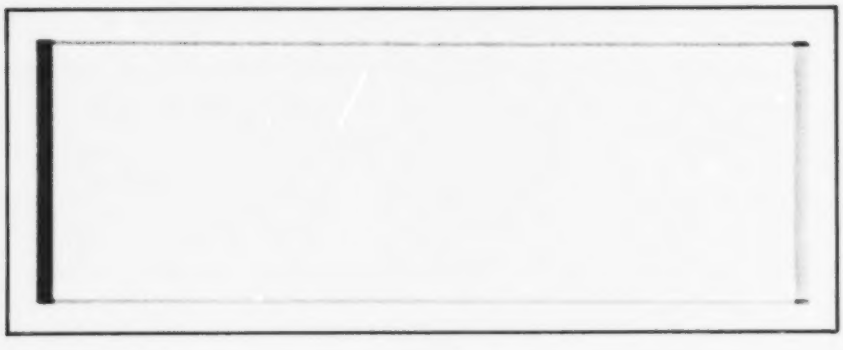

WORKING PAPER

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AN ANALYSIS OF THE FEED FREIGHT ASSISTANCE PROGRAM

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AN ANALYSIS OF THE FEED FREIGHT ASSISTANCE PROGRAM

1. INTRODUCTION

The Feed Freight Assistance (FFA) Program, established during the Second World War has undergone a series of change since its inception in response to changes in market conditions. Since the last major change in 1976, the feed grain market has continued to evolve. Specifically, feed grain production in eastern Canada has continued to expand. At the same time the program has been subject to a number of criticisms relating to rate differential for grains of eastern and western origins and for the delivery portion of total transportation costs covered by FFA rates. There is also some concern that FFA payments are still paid in areas which are no longer deficit in feed grains. The objective of the paper is to examine the validity of these concerns and to evaluate the impact which changing the program to address these concerns would have on the various participants in the market.

The balance of the paper is organized as follows. In Section 2, a summary of the history of the program is presented with a view to giving the reader the necessary background for the discussion which follows. Included is a discussion of the evolution of shipments and expenditures under the program which resulted from changes in the program. In Section 3, the objectives of the program are examined in the context of broader feed grain policy objectives. In Section 4, the impact of the FFA program on spacial feed grain prices is qualitatively examined. In Section 5, the evolution of self-sufficiency in feed deficit regions of Eastern Canada during the period 1976 to 1981 is examined and in Section 6, the impact of certain changes in the program are examined with respect to their impact in the grain/ livestock sector and on government expenditures. Section 7 contains the summary and conclusion of the study.

2. BACKGROUND

a) Program History

Since 1941, the Federal Government has paid a subsidy on the transportation of feed grains from the Prairie provinces to Eastern Canada and British Columbia. This Feed Freight Assistance (FFA) program was originally conceived as a wartime measure in an effort to maintain and increase livestock production required for war demands under conditions of price control.

This program was one among others initiated by the Federal Government to keep the cost of living down. More specifically to agriculture, the policy of providing freight assistance on feed grains was instituted by the Federal Department of Agriculture in 1941. Under the program, first receivers of feed grain shipments from the Prairies were eligible for subsidies which almost completely offset the cost of transporting the grain eastward from Thunder Bay. The program thereby had the effect of lowering the delivered cost of feed grains shipped from the Prairies and at the same time lowered the prices received by grain producers in deficit areas. The objectives of the program were:

1. to make available adequate supplies of feed to maintain livestock production for domestic and export requirements;

2. to keep the costs of livestock production down, especially while controls remained on prices of livestock and livestock products; and

3. to equalize prices payed by users for feeds all across Canada.

During the wartime period, the Federal Government paid virtually all of the freight costs of moving feed grains from the prairies to feed deficit areas.

Federal Government assistance under the FFA policy was prolonged after the end of the war with rate adjustments from time to time. The continuation of the FFA was also a way to preserve a market outlet for Prairie grains.

TABLE 1 BALANCE OF COST AFTER DEDUCTION OF FFA ($/tonne)

Date	Freight cost Rail	Water	FFA Rate	Balance of cost Rail	Water
		St. Anselme (Dorchester), Quebec			
1/65	9.65	N.A.	8.20	1.43	N.A.
1/73	11.25	N.A.	7.40	3.89	N.A.
1/75	15.24	17.03	7.40	7.84	9.63
1/76	18.64	18.40	7.40	11.24	11.00
1/78	21.82	21.37	2.20	19.62	17.88
1/80	27.68	23.62	2.20	25.42	24.88
1/82	36.11	33.62	2.20	33.91	31.46
1/83	39.92	34.50	2.20	37.72	32.30
1/84	42.08	36.13	2.20	39.88	33.93
1/85	46.64	33.75	2.20	44.44	31.55
1/86	46.64	34.59	2.20	44.44	32.39
		Truro, Nova Scotia			
1/65	13.00	N.A.	12.10	0.95	N.A.
1/73	13.50	N.A.	9.90	3.05	N.A.
1/75	21.42	N.A.	10.40	11.02	N.A.
1/76	21.73	N.A.	10.40	11.33	N.A.
1/78	26.89	N.A.	10.40	16.49	N.A.
1/80	37.72	N.A.	10.40	27.32	N.A.
1/82	49.34	46.71	10.40	38.94	36.31
1/83	52.04	50.76	10.40	41.64	40.36
1/84	54.65	51.90	10.40	44.25	41.50
1/85	57.66	49.51	10.40	45.27	37.11
1/86	57.66	49.53	12.40	45.27	37.13

The opening of the St. Lawrence Seaway in 1959 reduced the costs of transporting grain to destinations in eastern Canada particularly Quebec and Ontario. As shown in table 1, the result was that the balance of cost paid to Ontario and Quebec users was reduced below levels paid by the Maritimes.

In 1966, the Federal Government enacted the "Livestock Feed Assistance Act" establishing the Canadian Livestock Feed Board. Under the Act, the objects of the Board are to ensure:

a) the availability of feed grains to meet the needs of livestock feeders (in eastern Canada and British Columbia);

b) the availability of storage space in eastern Canada for feed grains to meet the needs of livestock feeders;

c) reasonable stability in the price of feed grains in eastern Canada and in British Columbia; and

d) fair equalization of feed grain prices in eastern Canada and in British Columbia.

In accordance of the above mentioned objects the Board, among other things, makes payments under the FFA program.

In October 1967, grain corn grown in Ontario and shipped to the Atlantic provinces became elibible for FFA payments in order to make it available to livestock producers in Atlantic provinces at a cost equal to that paid by livestock producers' in Ontario and Quebec.

In 1976, FFA rates were modified so that, in Ontario and western Quebec, rates of assistance of $6.60 per tonne or less were eliminated while rates were scaled down amounts in central parts of Quebec. Assistance rates to northern

TABLE 2 EVOLUTION OF FFA RATES AT SELECTED POINTS

	1974[1] (April 9)		1977[2] (May 12)		1984 (August 23)	
	Western Grain	Eastern Grain[3]	Western Grain	Eastern Grain[4]	Western Grain	Eastern Grain[5]
	$ per tonne					
Newfoundland						
Avalon Peninsula	17.40	12.30	17.40	13.00	39.00 50.00[6]	39.00 39.00[6]
Prince Edward Island						
Prince & Queens Counties	15.40	10.30	15.40	11.00	17.40	13.00
Nova Scotia						
Truro	10.40	5.30	10.40	6.00	12.40	8.00
Kings County	12.60	7.50	12.60	8.20	15.60	11.20
New Brunswick						
Kings County	14.60	9.50	14.60	10.20	16.60	12.20
Quebec						
Gaspé Area	19.80	14.70	19.80	16.50	19.80	16.50
Beauce Area	7.50	2.40	2.20	-	2.20	-
Montreal Area	6.60	1.50	-	-	-	-
Ontario						
Cochrane County	17.00	-	17.00	-	17.00	16.00
Chatham Area	4.00	-	-	-	-	-
British Columbia						
Lower Mainland	11.50	N/A	11.50	N/A	11.50	N/A

1 Rates in effect prior to the May 31, 1976, FFA changes.
2 Rates in effect after the above-mentioned changes and after FFA rates to British Columbia were readjusted to their original level (prior to 1976).
3 Covered only shipments of Ontario wheat and corn to the Atlantic provinces and Ontario wheat to Quebec.
4 Covered shipments enumerated in reference 3 plus Ontario corn to Quebec.
5 Covers all commercial sales of feed grains produced anywhere in Eastern Canada.
6 Apply to mode of transportation other than by water.

and eastern Quebec and to the Atlantic provinces were not changed because of the greater dependance of livestock feeders in those areas on outside supplies of feed grains (Table 2). The funds saved as a result of the reduction in freight assistance over a five-year period were committed by the Federal Government to programs designed to improve grain production and handling in areas affected by the reductions through the Feed Freight Assistance Adjustment Program.

In 1980, shipments of feed to the Yukon and Northwest Territories were made eligible for FFA payment.

Finally, in 1984, all feed grains of Canadian origin which passed through commercial channels to users in areas eligible for FFA payments were made eligible for FFA. This was done to reduce the disincentive created by the subsidy against the use of locally produced grain in feed deficit areas.

b) Evolution of FFA Shipments and Expenditures by Province

In the three years preceding the 1976 FFA changes, feed grain shipments covered by the program averaged nearly 2.5 million tonnes (Mt) of which 50 percent was destined to Quebec (Table 3). However, even before the 1976 changes, FFA shipments to both Quebec and Ontario had been declining as a result of increasing local production. After the FFA changes, removing most of Ontario and western Quebec from the eligible zone, the volume of shipments supported by FFA payment declined dramatically in Ontario while the effect on shipments to Quebec was more gradual. In the period 1981/82 - 1983/84 annual FFA shipments averaged 1.9 Mt, a drop of 0.5 Mt compared to the period prior to the changes. While shipments to Québec and especially Ontario declined during the two periods by nearly 0.9 Mt, shipments to other feed deficit provinces increased, most noticably to British Columbia and Newfoundland. Quebec, however, still accounts for nearly 50 percent of total feed grain shipments under FFA.

FFA expenditures, in the three year period up to 1976 averaged to $20 million annually and again 50 percent of the total outlays covered FFA shipments to Quebec. With the FFA changes, however, expenditures dropped significantly for Ontario and more particularly Quebec. For the period 1981-82 to 1983-84, the total FFA expenditures averaged $15 million, $5 million below the three year

period prior to 1976. Expenditures declined sharply in Ontario and Quebec but increased significantly in all other feed deficit provinces except Prince Edward Island. British Columbia is now the province receiving the largest part of FFA expenditures although the Atlantic provinces as a region now receive more.

The 1976 FFA rate changes had opposite effects on the provincial average FFA rates for Ontario and Quebec. In Quebec the two major FFA recipient zones saw their rate of assistance drop by $5 - $6 to levels of $1.30 and $2.20 per tonne (on grain of western origin). This resulted in an overall reduction in the average provincial rate from $8.01 prior to 1976 to $3.44 in 1984.

In Ontario the 1976 changes removed all but the northern regions from FFA eligible zones. As a result, the average rate of assistance per tonne for Ontario increased in the period after the changes. Among the other provinces receiving FFA, Newfoundland saw its average rate received increase by almost $20 to $38.41 per tonne for the 1984-85 crop year. The other provinces' rates have stayed virtually constant. Nevertheless from 1976, total expenditures under the program increased from $10 million in 1976 to $17 million in 1985.

TABLE 3 FFA SHIPMENTS AND EXPENDITURES BY PROVINCE: AVERAGE OF CROP YEARS 1973-74 TO 1975-76 AND 1981-82 TO 1983-84

	FFA Shipments		FFA Expenditures		Average Provincial FFA Rates	
	73/74-75/76 Average	81/82-83/84 Average	73/74-75/76 Average	81/82-83/84 Average	73/74-75/76 Average	81/82-83/84 Average
	- tonnes -		- dollars -		- dollars per tonne -	
Newfoundland	32,473	46,979	628,274	1,366,243	19.35	29.08
P.E.I.	30,122	31,108	433,963	439,108	14.41	14.12
Nova Scotia	173,340	211,362	1,777,690	2,347,697	10.26	11.11
New Brunswick	96,118	132,176	1,290,454	1,714,969	13.43	12.97
Québec	1,253,252	973,252	10,035,932	3,345,766	8.01	3.44
Ontario	592,626	12,185	3,027,412	121,314	5.11	9.96
British Columbia	291,636	527,994	3,011,402	5,664,506	10.33	10.73
Yukon and N.W.T.	-	381	-	19,046	-	49.99
TOTAL	2,469,567	1,935,437	20,205,127	15,018,649	8.18	7.76

1. There was a rate increase of $2 to $3/tonne in most Maritime zones in 1984.

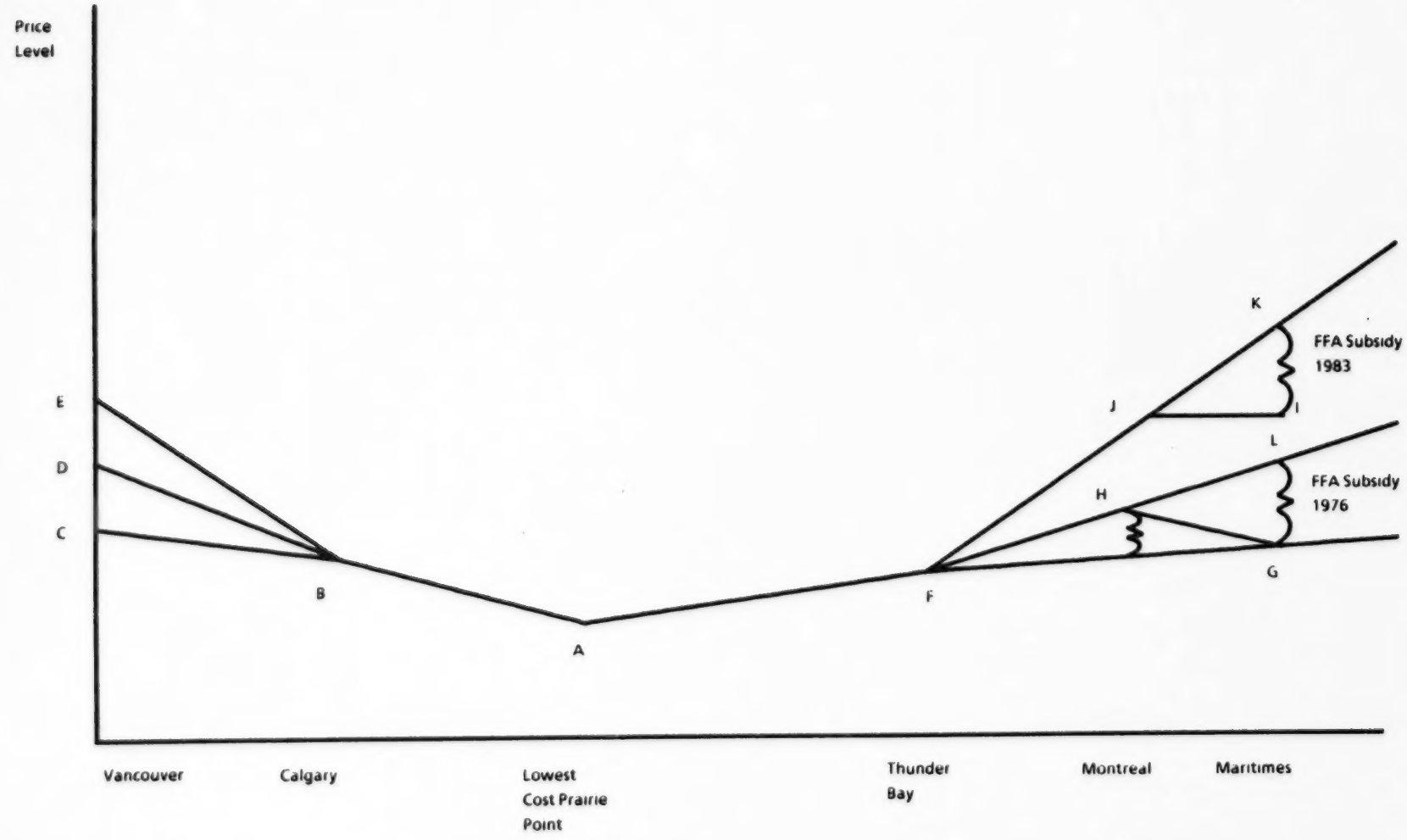
3. CONCEPTUAL ANALYSIS OF FFA

(a) The Impact of FFA on Spacial Price Relationships

In the absence of transport subsidies, regional feed grain prices in an efficient market would differ at most by transport costs. This situation is graphically presented in Figure 1. Moving eastward from the Prairies, price increases along the gradient AFHL. The segment FHL is steeper than AF since the statutory rates for shipment to Thunder Bay are less than the rates prevailing east of Thunder Bay. However, prior to 1976, FFA payments were roughly equal to 60% of the cost of transporting grain from Thunder Bay. Consequently, the net price represented by the line AFG is below AFHL from Thunder Bay eastward but does have a positive slope. In 1976 FFA assistance was eliminated for much of Quebec, reduced in other Quebec regions, but was maintained at existing levels in the Maritimes. Thus, the new net price line became AFHG and consequently net prices were lower in the Maritimes than in Quebec. Since 1976, the cost of transporting grain eastward from Thunder Bay has increased while FFA rates have been maintained at approximately 1976 levels in nearly all eastern Zones.

Consequently, the net price paid by Maritime users for feed grain has increased relative to that paid in Quebec such that by 1983 the Maritime FFA subsidy equalled the additional cost of transporting feed grain from Montreal to Maritime destinations. Maritime rates were raised in 1984 to maintain this relationship. Thus the price gradient AFJI is flat from Montreal eastward. For British Columbia, there is an additional complication in that shipments, for domestic use are not eligible for statutory rates. Thus for export shipments the price gradient would be represented by ABC. Without access to statutory rates or FFA, the price gradient would be ABE. Because of FFA payments, the net price gradient ABD lies below ABE. However, because FFA payments do <u>not</u> completely offset the difference between export and domestic freight rates, BD still lies above BC, the price gradient which would apply with no FFA but with the statutory rate applied to westbound shipments for domestic use.

FIGURE 1. IMPACT OF FEED FREIGHT ASSISTANCE PAYMENTS ON SPACIAL FEED GRAIN PRICES

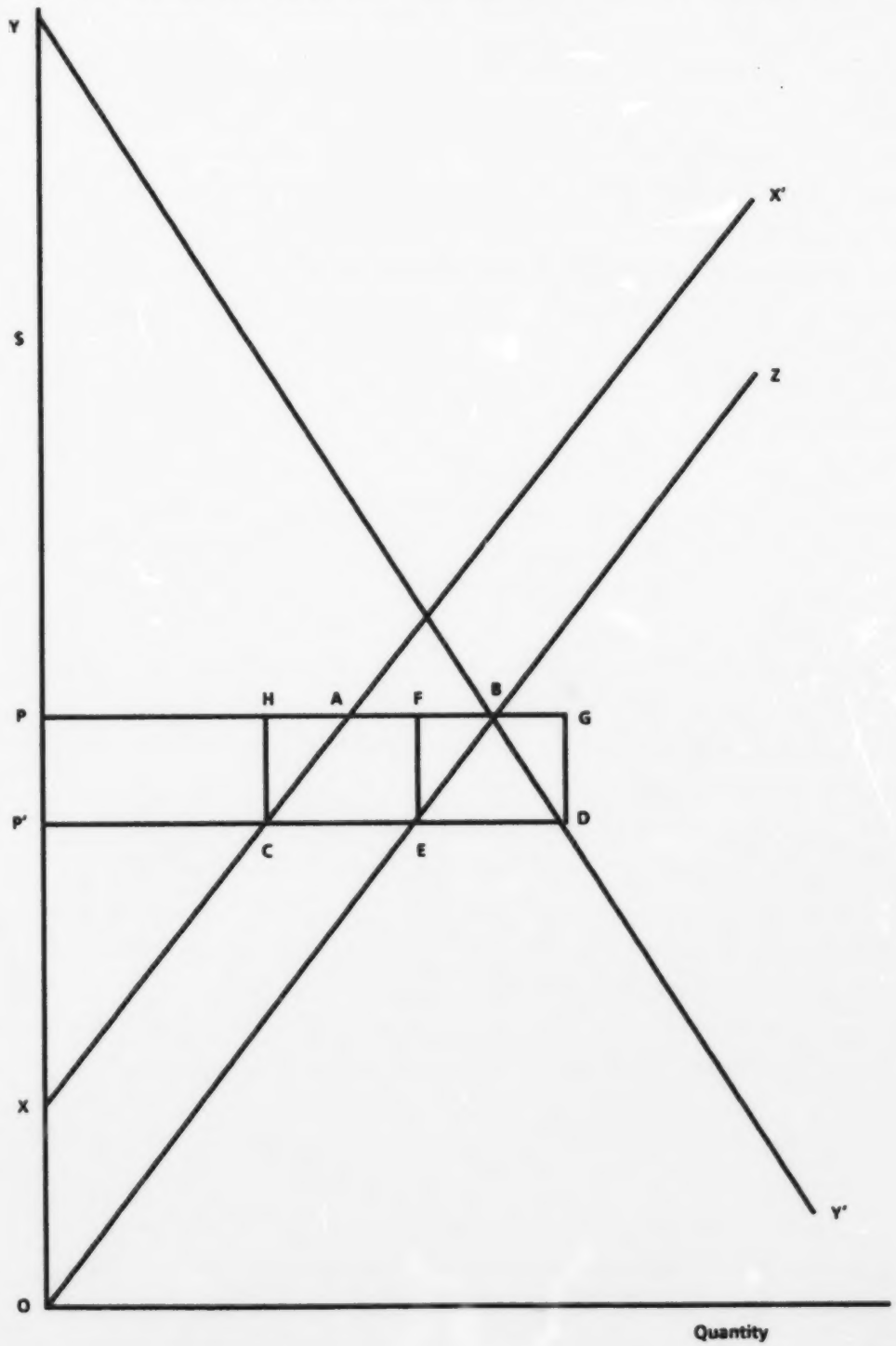


(b) Welfare Implications of FFA

Having seen the impact of FFA payments is to reduce local grain prices, one can proceed to examine the welfare implications of such a program. This can be done using figure 2 where XX' and YY' represent the supply and demand schedules for feed grains in a feed deficit region. In the absence of FFA, an unlimited supply of feed grains can be purchased at prices OP. Under this situation producer surplus is represented by area PAX and grain consumer surplus is represented by the area PBY. As discussed earlier, FFA payments have the result of reducing the price of incoming grain from OP to OP'. As a result, grain consumer surplus is increased by the area PBDP' but grain producer surplus is reduced by PACP'. For consumers and producers combined, the net gain in welfare is ABDE. However, when the government cost is considered, the subsidy reduces the social surplus by the sum of areas HAC and, represented as the area HGDC, BGD.

If government costs are ignored the subsidy can result in a significant net gain. However as shown in Figure 2, as the degree of self-sufficiency expands the net gain from the program falls. As before, the gain in grain consumer surplus is PBDP'. However, the loss in grain producer surplus is now PBEP' and the net gain from the program is the area BDE. Government cost has also been reduced to FGDE. The loss in social surplus is the sum of FBE and BGD which, as long as the slope of the new supply curve OZ, is equal to that of the original supply curve, XX', will equal the sum of HAC and BGD; that is social loss has not been reduced even though government subsidy has been reduced - this implies that the benefit-cost ratio associated with the program falls as self-sufficiency increases implying that a phase-out of the program may be justified.

FIGURE 2. WELFARE IMPACTS OF THE FEED FREIGHT ASSISTANCE PROGRAM



4. FFA IN THE CONTEXT OF THE FEED GRAIN POLICY

In 1976, along with changes in FFA, the Federal Government reaffirmed the overall objective of the Feed Grain Policy (outlined in 1974) which were:

a) to provide a fair and equitable base price for feed grains across Canada;

b) to provide relief for the producer against depressed feed grain prices; and

c) to encourage the growth of livestock and feed grains across Canada according to natural factors and natural potential of the various regions of Canada.

The objectives were reaffirmed again in 1979 and still form the basis of the current policy. To assess the FFA program in the context of these objectives, it is necessary to have a more precise definition of the term "fair and equitable price base". Generally, this is taken to mean that prices across Canada will differ by, at most, the transportation and handling costs incurred in moving grain from one region to another. Using this definition, the FFA program would seem to be consistent with objectives a and b, but in conflict with objectives c since in subsidizing feed grain freight costs, FFA does encourage more livestock production in feed deficit areas than would be forthcoming if market forces were left unaltered. It is worth noting, however, that since the rate adjustments of 1976 the distortion has been greatly reduced because the major livestock producing regions of Quebec and Ontario now receive no or very low rates of assistance. Nevertheless it would appear that justification for continuation of the FFA program must come from objectives other than those underlying current domestic feed grain policy.

5. ESTIMATION OF SELF-SUFFICIENCY

In 1976 in response to and in order to further promote the increase in self-sufficiency in feed grain production in central Canada, Feed Freight Assistance payments were terminated for Ontario (except for some of the more northerly regions) and for western Quebec. This removed the subsidy on incoming grains competing with local production. Since that time, production of feed grains, particularly corn has continued to increase. It is therefore appropriate to re-examine the situation with respect to feed grain

self-sufficiency in eastern Canada. To do this, production and estimated feed grain use have been calculated for each county in Quebec and Ontario and for each of the Maritime provinces.

a) Methodology

The estimation of feed grain self-sufficiency was carried out for the years 1976 and 1981. The years were chosen to take advantage of information regarding crop areas by county contained in Statistics Canada's Census of Agriculture. The two dates give bench marks whereby one can measure changes in production, consumption and self-sufficiency since 1976.

To estimate county level production, seeded areas were obtained from the Census of Agriculture. Yields were obtained from Statistics Canada's crop surveys. In some cases where yields for individual counties in Quebec were not available, yield data for Quebec agricultural regions published by the Bureau de la statistique du Quebec was imputed to each county in that region. Production of each feed grain was weighted by its total digestable nutrient (TDN) content relative to corn to obtain an estimate of total feed availability for each county. To estimate consumption, livestock numbers were drawn from the Census of Agriculture. Using fixed coefficients of consumption[1] provided by Statistics Canada for each class of livestock, total disappearance of feed grains was estimated for each county.

This method of estimation was compared with supply-disappearance balance sheet, whose feed use is estimated as a residual factor. The comparison of the two estimates appears in Table 4. The aggregate apparent feed use for eastern Canada is slightly higher than the estimated consumption. For Ontario, Québec and the Maritimes, apparent feed use ranged from 13% below (in 1976 for Québec) to 25% above (in 1981 for the Maritimes) the consumption estimates. From 1976 to 1981, the discrepancies in estimation stayed the same in the case of Ontario, declined in Québec and increased in the Maritimes. At the same time, however, the two sets of estimations have moved in the same direction (up) for each province.

[1]The coefficients used are presented in Appendix II.

Before drawing any conclusions based on these comparisons, one has to keep in mind that feed use derived by the residual approach is itself an estimate. There are incomplete data on the inter-provincial movement of grain to derive provincial feed usage on a residual basis. On one hand, data on grain movement under FFA gives us a fairly accurate estimation of grain moving into the Maritimes, although the movement of grain among Maritime provinces is not measured. On the other hand, estimates of the quantity of grain moving into Quebec are believed to be less reliable due partly to the fact that FFA doesn't cover all the regions of the province; additional information is provided by the Livestock Feed Board (Ontario corn movement) and the Canadian Grain Commission (western feed grain movement through Québec ports). For Ontario, the volume of Canadian grain moving in is rather small. Finally estimation errors in the other components of the balance sheet (notably production estimates) will be reflected in the residual estimates of feed use.

Given the discrepancies between estimated consumption and apparent feed use one must be careful in assessing absolute levels of consumption or self-sufficiency. However, the two estimates show sufficient correlation to indicate that our estimator provides a good indication of the changes in demand over time.

TABLE 4. COMPARISON BETWEEN ESTIMATED CONSUMPTION AND APPARENT FEED USE

	Estimated Consumption (A)	Apparent feed use (B)	Difference (100-B/A)
	'000 tonnes		%
Total Eastern Canada[1]			
1976	6,626.0	6,971.0	+ 5
1981	7,961.9	8,570.4	+ 8
Ontario			
1976	3,426.9	4,058.5	+19
1981	3,908.0	4,629.1	+19
Québec			
1976	2,750.8	2,395.2	-13
1981	3,550.6	3,311.0	- 7
Total Maritime provinces			
1976	448.3	523.3	+16
1981	503.3	630.2	+25
P.E.I.			
1976	106.2	203.8	+92
1981	125.0	211.1	+69
Nova Scotia			
1976	201.7	187.0	- 7
1981	226.9	243.7	+ 8
New Brunswick			
1976	140.4	132.5	- 6
1981	151.4	175.4	+16

[1]Excluding Newfoundland

Source: Statistics Canada, Ontario Ministry of Agriculture and Food, Livestock Feed Board of Canada, Canadian Grain Commission, Agriculture Canada

b) RESULTS

i. Ontario

In Ontario, two groups of counties as shown in Table 5 were analysed. The first group is located in eastern Ontario and in 1976 ceased to be eligible for FFA payments. The analytical results contained in Table 5 indicate that in 1976 this group of counties were 71 percent self-sufficient. Moreover, the group was relatively homogenous with ratio of self-sufficiency ranging only from 48 percent in Prescott to 86 percent in Russell. By 1981, the rate of self-sufficiency had nearly doubled to one hundred thirty one percent with only Prescott county remaining feed deficit.

The second group of counties to be examined is located in northern Ontario and is still eligible for FFA. Interestingly, our analysis indicates that in 1976 the rate of self-sufficiency in that group, was 84 percent, higher than the group in eastern Ontario. The group was much less homogenous, however, with one county, Temiskaming, at 158 percent self-sufficiency and the rest ranging from 42 to 70 percent. By 1981, the rate of self-sufficiency had increased by more than half to 134 percent. However, the analysis indicates that Temiskaming remains the only self-sufficient county at 315 percent while the rest now range from 29 percent (Parry Sound) to 86 percent.

ii. Québec

Although the Quebec analysis was done at the county level, in order to grasp the overall situation which prevailed in 1976, data is grouped in Table 6 by FFA zone and, for the zones 14, 15 and 16 in Quebec, according to whether the counties lie north or south of the St. Lawrence River.[1]

[1]See Appendix 1. For a list of counties included in each FFA zone. The reader may also refer to the map in Figure 4 to clarify the areas involved. For the purpose of our analysis, Vaudreuil and Soulanges were included in the zone 16 South (16-S) and Levis in the zone 15 North (15-N).

FEED FREIGHT ASSISTANCE ZONES IN QUEBEC

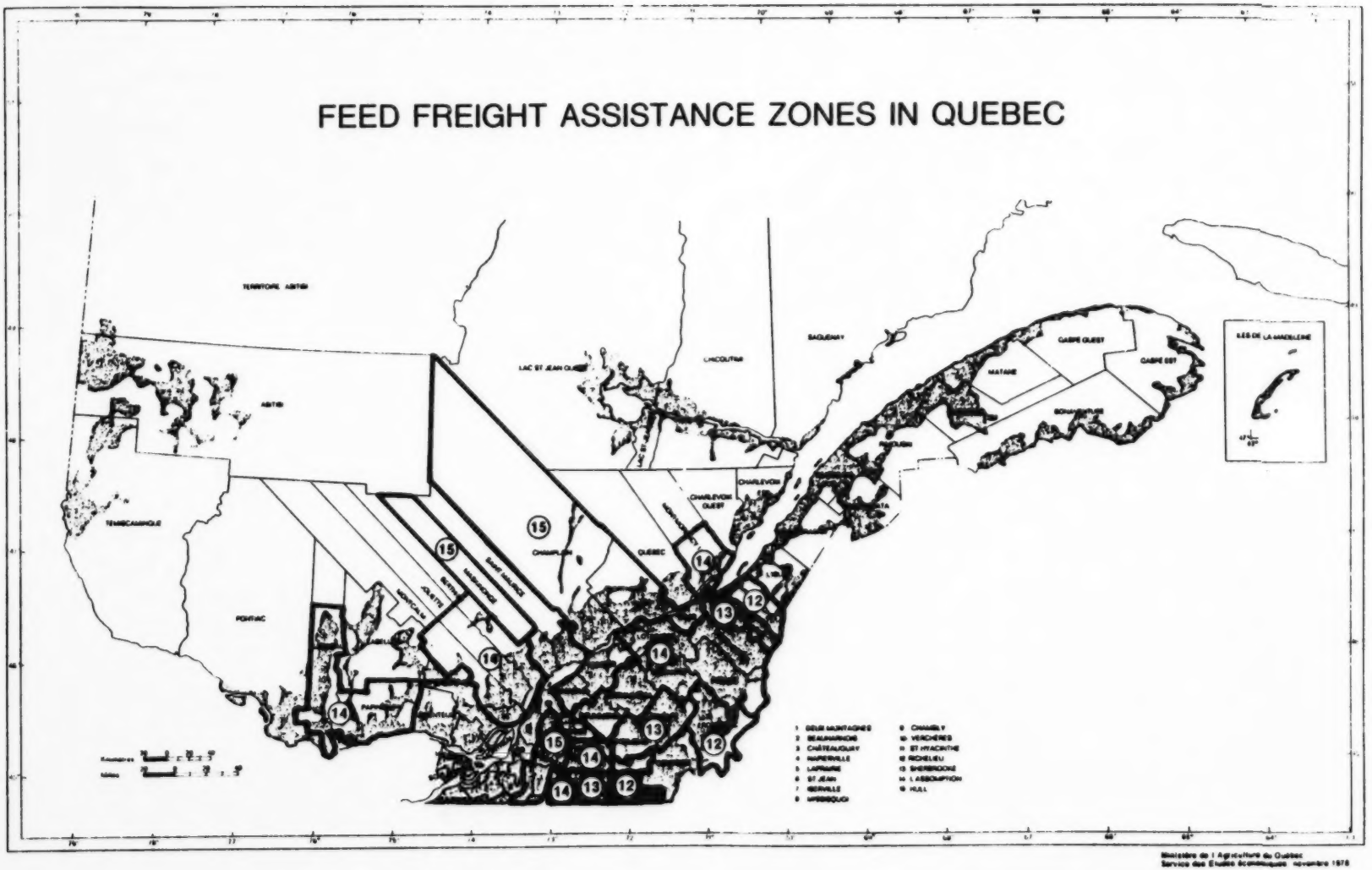


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TABLE 5 CHANGES IN FEED GRAIN SELF-SUFFICIENCY IN SELECTED ONTARIO COUNTIES

	1976			1981			Change Supplies 81 VS 76	Change Consumption 81 VS 76
	Supplies	Consumption	Sufficiency	Supplies	Consumption	Sufficiency		
	- tonnes -		%	- tonnes -		%	%	%
Eastern Ontario								
Ottawa-Carleton	46,544	54,960	85	97,088	50,799	191	109	-7
Dundas	27,329	42,163	65	69,120	46,257	149	153	10
Clengarry	30,138	41,961	72	68,949	45,952	150	129	10
Lanark	14,557	26,322	55	32,846	25,308	130	126	-4
Prescott	22,202	45,944	48	39,184	70,609	55	76	54
Renfrew	27,526	32,784	84	39,757	33,840	117	44	3
Russell	18,289	21,162	86	29,456	25,765	114	61	22
Stormount	21,445	25,883	83	48,106	26,228	183	124	1
Total	208,040	291,179	71	424,506	324,758	131	104	12
Northern Ontario								
Cochrane	2,190	5,173	42	3,671	5,636	65	68	9
Temiskaming	25,775	16,305	158	51,107	16,226	315	98	-
Algoma	4,866	6,900	70	5,301	7,828	68	9	13
Manitoulin	3,434	8,104	42	4,386	8,213	53	28	1
Sudbury	3,025	5,452	55	3,337	6,139	54	10	13
Nipissing	5,074	8,709	58	7,579	8,846	86	49	2
Parry Sound	2,197	4,948	44	1,346	4,579	29	61	-7
TOTAL	46,561	55,591	84	76,727	57,467	134	65	3

Looking first at the part of Quebec from which FFA was removed in 1976 (zone 16), it is quite evident that as a whole the region was, at that time, not self-sufficient. Four counties (all in the southern part) were self-sufficient while four others (also in the south) were nearly self-sufficient (above 90 percent). In total, zone 16 was only 53 percent self-sufficient. However, a north-south breakdown of the zone reveals a striking difference in the level of self-sufficiency, with the south at 93 percent and the north at only 24 percent self-sufficient. The south was producing nearly 75 percent of the total grain for the zone while the north consumed almost 60 percent of the total for the zone.

From 1976 to 1981, in zone 16 as a whole, feed grain production more than doubled, while demand within the zone increased by 8 percent. As a result, the zone produced 22 percent more grain than its needs by 1981. The southern part had a self-sufficiency level of 257 percent. In the northern part of the zone, the self-sufficiency rate, while substantially above its 1976 level, was still only 34 percent.

In zone 15, self-sufficiency has more than doubled from 34 percent in 1976 to 73 percent in 1981. Production has more than doubled while consumption has increased by 27 percent. The southern part of the zone shows in 1981 a self-sufficiency level nearing 90 percent. The northern part, despite an increase of 75 percent in grain production from 1976 to 1981, is only 21 percent self-sufficient by 1981.

Zone 14, especially the south portion, is the area with the largest livestock production base in the province. The zone as a whole, despite having more than doubled its grain production from 1976 to 1981 has remained heavily dependent on grain from outside the zone; its self-sufficiency went from 13 percent in 1976 to 21 percent in 1981. In the South, feed grain production in 1976 was below 80,000 tonnes and covered only 10 percent of the requirements of the large livestock population within the zone. By 1981, feed grain production more than doubled to reach nearly 200,000 tonnes. At the same time, feed grain demand increased by 42 percent. Although the self-sufficiency ratio increased to 18 percent in 1981, the deficit in feed grain widened in absolute terms from 680,000 tonnes in 1976 to 870,000 tonnes

TABLE 6 EVOLUTION OF SELF-SUFFICIENCY IN THE PROVINCE OF QUEBEC BY ZONE OF FFA, 1976 AND 1981

Zone	1976			1981			change Supplies 81 VS 76	change Consumption 81 VS 76
	Supplies[1]	Consumption[2]	Sufficiency	Supplies[1]	Consumption[2]	Sufficiency		
	- tonnes -		%	- tonnes -		%	%	%
16 tot.	200,923	376,849	53	500,582	408,822	122	149	8
16-N	53,564	219,118	24	83,257	246,173	34	55	12
16-S	147,359	157,731	93	417,325	162,649	257	183	3
15 tot.	250,595	733,669	34	679,391	931,034	73	171	27
15-N	26,278	195,357	13	46,036	217,105	21	75	11
15-S	224,317	538,312	42	633,355	713,929	89	182	33
14 tot.	129,262	1,017,837	13	280,186	1,325,636	21	117	30
14-N	51,637	263,589	20	85,561	257,343	33	66	-2
14-S	77,625	754,248	10	194,625	1,068,293	18	151	42
13 & 12 tot.	24,748	249,195	10	29,782	299,977	13	61	20
13	12,953	147,218	09	20,746	192,916	11	60	31
12	11,795	101,977	12	19,036	107,061	18	61	5
8 to 11 tot.	60,757	209,959	29	75,750	233,266	32	25	11
11	18,194	112,957	16	24,520	139,654	18	35	24
10	9,096	26,175	35	12,903	29,781	43	42	14
9	20,039	43,459	46	22,002	38,519	57	10	-11
8	13,428	27,368	49	16,325	25,312	64	22	-8
1 to 7 tot.	75,377	163,296	46	84,560	151,867	56	12	-7
7	27,158	76,951	35	36,313	79,395	46	34	3
6	16,788	31,305	54	24,317	27,806	87	45	-11
5	4,631	7,406	63	6,193	6,308	98	34	-15
4	13,356	19,162	70	11,548	15,706	74	-14	-18
3	10,774	22,929	47	4,289	18,564	23	-60	-19
2	2,592	4,741	55	1,883	3,722	51	-27	-21
1	78	802	10	17	366	05	-78	-54
TOTAL	741,662	2,750,805	27	1,660,251	3,350,602	50	124	22

[1]Total of the individual feed grains (including wheat) expressed in corn-equivalent.
[2]Total grain (corn) consuming animal units.

Source: Statistics Canada

in 1981. In zone 14 North, production of feed grain increased by two thirds while feed requirements decreased slightly over the period; consequently self-sufficiency improved from 20 to 33 percent in 1981.

Zones 13 and 12 include the most part of the Eastern townships as well as two counties west of Quebec City (Bellechasse and Montmagny). Both zones rely greatly on outside sources of feed grains; despite a significant increase in feed grain production, their level of self-sufficiency stood at 13 percent in 1981.

Zones 8 to 11 include counties further west of Quebec City from L'Islet to Rimouski, as well as Charlevois, Compton and Labelle. Overall, the four zones increased their self-sufficiency level from 29 percent to 32 percent. As we move into a zone of higher FFA rate, we can notice a lower increase in feed grain production and also a prognessively lower increase in livestock numbers (expressed by feed grain consumption estimates); in fact, feed grain demand in zone 8 and 9 decreased by 8 and 11 percent respectively from 1976 to 1981. This had the impact to increase more markedly the self-sufficiency level of those two zones.

Zone 1 to 7 cover the peripheral areas that are the Saguenay, Lac St-Jean, La Côte Nord, the lower St-Lawrence area east of Rimouski, the Gaspé area, Abitibi, Temiscamingue and Les Iles de la Madeleine. The area as a whole increased its self-sufficiency from 46 percent to 56 percent during the period as a result of the combination of a 12 percent increase in feed grain production and a 7 percent decrease in consumption. Feed grain production actually decreased in the zones 1 to 4 (Iles de la Madeleine, Gaspé, Côte Nord, Abitibi and Temiscamingue) while consumption decreased in all the zones except zone 7 (regions of Saguenay, Lac St-Jean).

iii) Maritimes

The analysis for the Maritimes was done at the provincial rather than at the county level because the region concerned was smaller than was the case for Quebec and Ontario. The analytical results presented in Table 7 indicate that self-sufficiency has actually fallen from 58 to 52 percent in the Maritimes. Reduced production in Prince Edward Island slightly more than offset increased production in the other two provinces while consumption increased in all three provinces mainly due to increased hog production. In Nova Scotia and New Brunswick self-sufficiency increased marginally.

TABLE 7 EVOLUTION OF FEED GRAIN SELF-SUFFICIENCY IN THE MARITIME PROVINCES, 1976-1981

Zone	1976			1981			change Supplies 81 VS 76	change Consumption 81 VS 76
	Supplies[1]	Consumption[2]	Sufficiency	Supplies[1]	Consumption[2]	Sufficiency		
	- tonnes -		%	- tonnes -		%	%	%
Prince Edward Island	188,863	106,172	178	176,888	125,013	141	-6	18
Nova Scotia	27,272	201,710	14	33,753	226,933	15	24	13
New Brunswick	42,178	140,416	30	48,813	151,345	32	16	8
Maritimes	258,313	448,298	58	259,454	503,291	52	-	12

6. OPTIONS FOR AMENDING FFA

a) Removal of FFA Payments from Self-sufficient Regions

As demonstrated in the previous section, there have been remarkable increases in feed grain production, particularly in Quebec since 1976. As a result, it is estimated that some regions receiving FFA payments are now actually feed grain self-sufficient. The net benefit of such payments is therefore greatly reduced. In this section the implication of discontinuing FFA payments in such regions are examined.

Despite a 33 percent increase in consumption, zone 15-S in Quebec has moved from being only 42 percent self-sufficient in 1976 to being 89 percent self-sufficient 1981. Within this zone some counties such as St. Jean produce more than three times their needs and ship grain to users in other counties within that zone and also in neighboring counties in zone 14. In these counties, price relationships have already shifted to reflect the surplus condition of the counties. Removal of FFA payments from those counties in zone 15 located south of the St. Lawrence River would be consistent with changes made in 1976. A smaller reduction would also be required in zone 14-S.

i) Impact on Grain/Livestock Sector

The impact of removing FFA payments from zone 15 is estimated to be minimal. Although significant FFA shipments do occur into this region, particularly the counties of Rouville and Bagot, the FFA rate is small ($1.30/tonne) and supplies from neighboring counties could be used to make up part of the gap. Even with such a reduction, because of the advantage of procuring stocks by water, the balance of cost paid by the users would remain below that paid by Maritime users.

Removal of FFA payments to the zone would make local and Ontario grain more competitive with barley from western Canada. In the longer term the reduced subsidy, especially if accompanied by infrastructural expenditures, could help to orient the grain handling and processing industry more toward local grain as opposed to western grain.

ii) Impact on Government Expenditures

Government expenditures would be reduced if FFA shipments were ceased in zone 15-S. The maximum saving would be the level of FFA payments made on shipments to that zone and the reduced cost of shipments to zone 14. For the three years 1981/82 to 1983/84 shipments to zone 15-S averaged 133,000 tonnes at a cost of $173,000/year. Shipments to zone 14-S averaged 385,000 tonnes. With a $1/tonne reduction in the FFA rate the saving would be about $385,000 for a total maximum annual saving of $558,000.

These savings would be reduced to the extent that removal of FFA payment would likely cause some re-direction of grain from surplus zone 15 counties such as St-Jean toward deficit counties within zone 15 rather than to other zones. To the extent that users in other zones replace these grains with western grains eligible for FFA, (as opposed to grains from Ontario or the United States) the savings from closing payment in zone 15-S would be offset.

b) Equalization of FFA Rates for Eastern and Western Grains

Eligibility of eastern grain for FFA payment was initiated in 1967 and expanded in 1984 to include commercial sales of feed grain produced in feed deficit regions. However as shown in Table 3 eastern feed grain receive FFA rates which are $3-$4/t lower than for western grain and are ineligible for assistance for shipments to much of Quebec. This rate disparity erodes the locational advantage which would otherwise be enjoyed by eastern producers in competing in the eastern feed market. In this section we examine the implications of eliminating the discrepancy between FFA rates for western grains and eastern grains by lowering FFA rates for western grain to those paid for eastern grains. This would result in the removal of FFA from zones 12 to 15.

i) Impact on the Grain/Livestock Sector

Feed users would pay marginally higher prices for feed although the increase would be less than the reduction in subsidy because the cost of eastern grain would be unaffected. Reducing the subsidy on western grain would cause some users to switch to eastern grains rather than continue to buy western grains at increased cost. The increased costs would accrue to regions where estimated self-sufficiency is as low as 11 percent and where, as a consequence, freight assisted grain makes up a substantial part of feed use.

The demand for western feed grains would fall since the net price of western grains would rise relative to those from the East. The reduction in demand might be sufficient to cause a reduction in Thunder Bay and Prairie prices which would reduce the impact on users.

Feed producers in eastern Canada would receive prices which would be higher by at most the reductions in this subsidy. As indicated above, the price increase would likely be less than the subsidy reduction because of increased competitiveness of eastern grains.

iii) Impact on Federal Expenditures

Based on 1983/84 shipments of western feed grain to eastern Canada of nearly 1.4 million tonnes and on average rate reduction of $3.50 per tonne (except in zones 12 to 15 where the FFA rate would be reduced to zero) the annual saving to the Federal Government would be in the neighborhood of $3.7 million. To the extent that the increased cost of western grain resulted in increased use of imported U.S. corn and not Ontario corn, the Federal savings could be even larger.

c) Increasing FFA Rates as Proposed by the Maritime Farmers' Council

As indicated above, in 1976 FFA rates in western Quebec and most of Ontario were eliminated, rates in central Quebec were reduced while rates for eastern Quebec, the Maritimes, and B.C., were left unchanged. Since that time, rates

have been held relatively fixed such that rates within each eligible zone now cover the cost of transporting feed grain from Montreal to any other zone eligible for FFA. The result is that since 1976, the proportion of feed grain transporation costs covered by FFA payments from either southern Ontario or Thunder Bay to the Maritimes has declined from 59.3% to between 25% and 30%. As a result the prices of feed grain in the Maritimes have risen relative to those in Ontario although the cost of feed grain in the Maritimes is now approximately the same as in Montreal (the western edge of the eastern Canada eligible for FFA) in keeping with the objectives of the program.

Unhappy at the erosion of Feed Freight Assistance rates as a percentage of transport costs the Maritime Farmers' Council (MFC) proposed that FFA rates be increased to 60 percent of transportation costs, that FFA payments be made on all local grain production (whether or not it moves through commercial channels), and that vegetable proteins of Canadian origin be made eligible for assistance.

If the FFA subsidy were increased to cover sixty percent of transportation costs in each FFA zone, there would be an increase in the differences between the balance of transportation costs (that is, transportation costs less Feed Freight Assistance) that shippers would pay in different regions. Thus, differences in feed costs between regions would increase. The policy has been to administer the program in such a way as to equate the balance of costs and, therefore the feed costs, paid in the regions receiving. On the assumption that the policy of equating balance of costs would continue, the costs of the MFC proposals were estimated by determining the increase in FFA rates needed to cover 60 percent of transportation costs in two representative Maritime locations and then applying this increase to all regions currently receiving FFA.

The two representative points chosen were Port Williams, N.S. and Truro, N.S. It should be noted that a choice of other points in the Maritimes would have resulted in a different level of increase in FFA rates. The current subsidy structure is such that the choice of a region with lower transportation costs would generally result in a greater rate increase to cover 60 percent of transport costs. It should also be noted that the application of a flat rate increase across all regions will result in some regions receiving more than 60 percent of transport costs while others receive less.

No attempt was made to determine whether or not regions not now receiving FFA should be added to those presently eligible for FAA payments as a result of these rate increases. Since back haul and equity issues may make the extension of FFA to regions not now receiving assistance likely if rates are increased as proposed by the MFC, the cost estimates presented for central Canada can, therefore, be considered to be low.

Truro, N.S., and Port Williams, N.S. were chosen as representative of the Maritime locations receiving FFA. Current transport costs and FFA subsidies for these locations are given in Table 8.

TABLE 8 TRANSPORT COSTS AND FFA RATES TO SELECTED MARITIME DESTINATIONS

	1985 Transport Costs[a] from		1985 FFA Subsidy on		Balance of Cost	
	Thunder Bay	Chatham	Western Grain	Eastern Grain	Western Grain	Eastern Grain
	($/tonne)					
Port						
Williams	53.61	47.17	15.60	11.20	38.01	35.97
Truro	50.26	42.33	12.40	8.00	37.86	34.33

[a]Does not include FOB cost Thunder Bay.

Transport costs obtained by telephone from Livestock Feed Board of Canada.

TABLE 9 RATE INCREASE REQUIRED TO ACHIEVE 60% OF TRANSPORT COSTS

	Western Products				Eastern Products			
	Transport Cost	60% of Transport Cost	1985 FFA Subsidy	FFA Subsidy Increase Required	Transport Cost	60% of Transport Cost	FFA Subsidy	FFA Subsidy Increase Required
	($/tonne)							
Port								
Williams	53.61	32.17	15.60	16.57	47.17	28.30	11.20	17.10
Truro	50.26	30.16	12.40	17.76	42.33	25.40	8.00	17.40
Average				17.16				17.25

Approximately 60% of the grain shipped into Maritimes is sourced from Western Canada and 40% from Eastern Canada. Therefore, the weighted average increase in subsidy required equals $17.20 per tonne ((17.16 X .6) + (17.25 X .4)).

In order to maintain the relationship between the balance of cost in all zones (it is now close to equality), the same absolute rate increase must be applied to all areas. Using the average rate increase for Port Williams and Truro will result in these two zones achieving a balance of cost close to 60% of transport costs but other zones will have balance of costs higher or lower than 60% of transport costs. An increase in the rate of assistance in all zones to 60% of the respective transportation cost would result in disparaties in the balance of costs between regions and would accentuate transport cost differences between zones.

It is assumed that FFA rates relating to protein would be eligible for the same rate as those for grains of the same source and destination. This is consistent with the manner in which other by-products are currently treated.

(i) Impact on the Grain/Livestock Sector

The increase in the FFA rate would lower the feed grain prices by that amount. This would amount to a reduction of about 20% in Nova Scotia and would lower the cost of producing hogs by $5.50/hog or $3.20/cwt. Making all local grain produced in deficit regions eligible for FFA payments would have the effect of increasing returns to grain producers by the amount of currently existing FFA rates. In the Maritimes, this increase would be about $14/tonne. Extending FFA to cover protein meals would reduce the price of the protein meal by the amount of the subsidy. For the Maritimes this would be about $29/tonne and would reduce the cost of producing a market hog by 1.31/hog or $0.76/cwt. It would also make the use of imported U.S. soybean meal economically infeasible.

(ii) Impact on Government Expenditures

The method for calculating the addition costs involved in increasing FFA rates as proposed is illustrated in Table 10. The cost of increasing the subsidy on existing shipments is estimated at $34.7 million annually. In addition it is

TABLE 10 ESTIMATED IMPACT ON PROGRAM COSTS OF THE INCREASE IN FFA RATES TO 60 PERCENT OF TRANSPORTATION COSTS AS PROPOSED BY THE MARITIME FARMERS' COUNCIL

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[1]Grain shipped into FFA zones presently receiving payments

Newfoundland	52,109[1]	X	$17.20[1]	= $ 896,275
Maritimes	418,377[1]	X	17.20	= 7,196,084
Quebec	963,596[1]	X	17.20	= 16,573,851
Ontario	16,765[1]	X	17.20	= 288,358
British Columbia and Yukon	564,135[1]	X	17.20	= 9,703,122
				34,657,690

[2]Eastern Grain Shipped into Quebec FFA Regions that are presently receiving payment on western grain but not on eastern grains.

	(000's tonnes)
Estimated demand for feed grains	2,941[2]
Less Current FFA shipments	(964)[1]
Local production	(1,149)[2]
Feed grain Supplied from other sources	828

Cost = 828,000 X 17.09[4] = $14,150,520

[3]Total Cost = $34,657,690 + 14,150,520 = $48,808,210

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[1]1984-1985 fiscal year total volumes of FFA assisted shipments.

[2]Based on Statistics Canada coefficients for feed consumption and 1981 census data on livestock numbers and crop production.

estimated that they are 820,000 tonnes of grains shipped from the United States, Ontario and Western Quebec which are not eligible for FFA. It is assumed that all shipments from Eastern Canada would become eligible and, moreover, that because of the subsidy, Canadian grain would replace grain currently obtained from the United States. Making such grain eligible would add an additional $14.2 million to this annual cost and would bring the total cost increment to $48.4 million/year. The cost of making all local grain eligible for FFA payments is estimated in Table 11. Making all local grain eligible is estimated to cost an additional $31.5 million/year.

TABLE 11 COST OF MAKING LOCAL GRAIN ELIGIBLE

	Local Grain Production (000 tonnes)	Rate of Assistance[4] ($/tonne)	Total Cost ($000)
Newfoundland[4]			
Maritimes	295[1]	28.91	8,528
Quebec	1,149[2]	17.09	19,636
Ontario	76[2]	26.02	1,978
British Columbia	51[3]	27.79	1,417
Canada			31,559

1 Average of 1982, 1983 and 1984 Statistics Canada production estimates for the Maritimes.

2 Based on data for the FFA regions of these provinces obtained from the 1981 Census of Agriculture.

3 Based upon 1984 published and unpublished Statistics Canada data for British Columbia and the Peace River region. Production in the Peace River region and an estimate of production in the Creston-Wynndel region (3% of B.C. production) was subtracted from total B.C. production to obtain on estimate of production in the areas of B.C. eligible for FFA.

4 There is no local production of grain in Newfoundland.

This cost of making local grain eligible for FFA is taken as being totally incremental to 1984-1985 costs, since, although local grain moving through commercial channels was made eligible for Feed Freight Assistance in August 1984, very little actually moved through commercial channels in 1984-85. In British Columbia, for example, only 535 tonnes of local grain moved through commercial channels in 1984-85.

The cost of making protein shipments eligible for FFA payments is estimated in Table 12. Since data on protein meal shipments are not available, estimates have been developed assuming that the protein/feed grain consumption ratio is the same in Central Canada and British Columbia as in the Maritimes where it is estimated that 60,000 tonnes of protein meal is used - about 11% of estimated feed grain use. It is estimated that making protein eligible would cost about $9.4 million/year.

The estimated total cost of implementing the MFC proposal is as shown in Table 13, to be $106.8 million annually. However these impacts are subject to a number of reservations. Firstly, they are first round impacts. In some cases, due to the interactions between grain programs and other government programs, the final impact may be smaller. For example in some cases the price received by farmers are governed by cost of production formulae. In such cases changes to FFA rates could result in adjustments in the price paid to farmer for the commodity. If local consumption is stimulated by the increase in FFA rates, the cost of this proposal would increase. Secondly, no allowance is made for changes which would have to be made to the boundaries of the region eligible for FFA payments which would be necessary to avoid distortion in regional price relationships which implementation of the Maritime proposal might create. Finally, it should also be noted that this cost does not include any administration costs. Since it would be extremely difficult to control expenditures under this program, it could be expected that administrative expenses would be substantial.

TABLE 12 ESTIMATED COST OF MAKING VEGETABLE PROTEINS ELIGIBLE

	Tonnes (1,000 tonnes)	Rate of Assistance ($/tonne)	Total Cost ($1,000)
Newfoundland	5[1]	54.09	270
Maritimes	55[1]	28.91	1,590
Quebec	324[2]	17.09	5,537
Ontario	6[2]	26.02	156
British Columbia	65[2]	27.79	1,806
TOTAL			9,359

1 The Livestock Feed Board of Canada estimates that about 60,000 tonnes of vegetable protein is used in the Atlantic region. It was assumed that this estimate was divided between the Maritimes and Newfoundland in the same proportion as current use of feed grains. That is, the estimate of vegetable protein used in the Maritimes equal 92 percent of the total use in the Atlantic region.

2 It is assumed that the relationship between vegetable protein use and feed grain demand will be the same in central Canada and British Columbia as in Atlantic Canada. That is, vegetable protein use will equal 11% of feed grain use (vegetable protein use in the Atlantic provinces was estimated to be 60,000 tonnes in 1983 and feed grain use was estimated to be 558,000 tonnes both estimates from the Livestock Feed Board). The use of vegetable protein in Ontario, Quebec and British Columbia will then equal 11 percent of the estimated feed grain use in those provinces. The Quebec and Ontario estimates of feed grain use are based on Census of Agriculture livestock numbers for the regions eligible for FFA and Statistics Canada coefficients for feed use. The British Columbia estimate of feed use is a Canadian Livestock Feed Board estimate for 1983.

TABLE 13 ESTIMATED TOTAL COST OF MARITIME FARMERS' COUNCIL'S PROPOSAL FOR CHANGES IN THE FEED FREIGHT ASSISTANCE PROGRAM[1]

	($ million)	Current Program Cost[2]	Total Cost of Revised Program
NEWFOUNDLAND			
Increase in Rate	0.9		
Vegetable Protein Eligible	0.3		
	1.2	2.0	3.2
Maritimes (N.S., N.B. and P.E.I.)			
Increase in Rates	7.2		
All Local Production Eligible	8.5		
Vegetable Protein ELigible	1.6		
	17.3	5.6	22.9
Central Canada (Ontario and Quebec)			
Increase in Rates	31.0		
All Local Production Eligible	21.6		
Vegetable Protein Eligible	5.7		
	58.3	3.5	61.8
British Columbia			
Increase in Rates	9.7		
All Local Grain Made Eligible	1.4		
Vegetable Protein Eligible	1.8		
	12.9	6.0	18.9
Canada			
Increase in Rates	48.8		
All Local Production Eligible	31.5		
Vegetable Protein Eligible	9.4		
	89.7	17.1	106.8

1 As noted in the introductory paragraphs on page 1 and 2, these estimates would vary with the assumptions used, and they do not include any allowance for the cost of extending the program to regions not now receiving Feed Freight Assistance.

2 1984-1985 fiscal year-costs. Since the last rate increase was only in effect for a portion of the year (after August 1, 1984), program costs in future years will be slightly larger than the 1984-85 levels even if there is no change in the rates of assistance.

7. CONCLUSIONS

There has been marked increase in feed grain production in areas receiving FFA, particularly in Quebec. However because a coincident increase in feed use, primarily as a result of increased hog production in many of these same areas, self-sufficiency has in many cases changed little. Self-sufficiency has increased significantly in that part of zone 15 lying south of the St. Lawrence River. As a result FFA could be phased out in that zone, with some adjustments made in zone 14 to avoid encouragement of back haul of feed from zone 14 to zone 15. Such a reduction could reduce government costs by about $558,000 annually.

Different FFA rates tend to offset the locational advantage of grain produced in Central Canada in servicing markets in eastern Quebec and the Maritimes. Reducing the rates for western grain to those in effect for grain of eastern origin would raise costs paid by livestock producing but by less than the reduction in rates because of (1) the tendency to increase consumption of eastern grains and (2) the reduction in western off-Board prices which might accompany the lower subsidy. Potential savings to the Federal Government are estimated to be in the order of $3-$5 million annually.

FFA rates as a proportion of transport costs have declined as a result of the phasing out of FFA payments in Ontario and western Quebec. It is estimated that restoring rates to 60% of transport costs, and extending the subsidy to cover protein meals and all local grain production would increase the cost of the program by an estimated $107 million/year.

APPENDIX 1 FEED FREIGHT ASSISTANCE RATES FOR QUEBEC, ONTARIO AND THE MARITIME PROVINCES

Zone	Counties Included	Eligible Western Products	Eligible Eastern Products
	Ontario		
1.	Cochrane	17.00	16.00
2.	Timiskiming	13.70	6.00
3.	Algoma, Manitoulin	12.50	12.50
4.	Sudbury	10.60	9.00
5.	Nipissing	9.70	6.00
6.	Parry Sound	9.70	N.A.
	Quebec		
1.	Isles-de-la-Madeleine	20.30	17.00
2.	Gaspé-West, Gapé-East, Saguenay	19.80	16.50
3.	Abitibi	19.00	13.00
4.	Témiscamingue	15.80	6.00
5.	Bonaventure	17.60	14.30
6.	Matane, Métapédia	12.80	9.50
7.	Chicoutimi, Lac St. Jean-West, Lac St-Jean-East	10.60	7.30
8.	Rimouski	9.50	6.20
9.	Rivière du Loup, Témiscouta	8.40	5.10
10.	Kamouraska	6.80	3.56
11.	Charlevoix, Compton, Labelle, L'Islet	5.70	2.40
12.	Frontenac, Montmagny, Sherbrooke, Stanstead	3.70	N.A.
13.	Bellechasse, Frome, Richmond, Wolfe,	3.30	N.A.
14.	Athabaska, Beauce, Berthier, Dorchester, Drummond, Gatineau, Joliette, Lotbinière, Mégantic, Missiquoi, Montcalm, Montmorency, Panipeau, Shefford	2.20	N.A.
15.	Bagot, Champlain, Iberville, Lévis, Maskinonge, Nicolet, Portneuf, Rouville, St. Hyacinthe, St. Jean, Yamaska	1.30	N.A.

- continued -

APPENDIX 1 FEED FREIGHT ASSISTANCE RATES FOR QUEBEC, ONTARIO AND THE MARITIME PROVINCES (concluded)

Zone	Counties Included	Eligible Western Products	Eligible Eastern Products
	New Brunswick		
1.	Gloucester, Northumberland, Queens, Charlotte	18.10	13.70
2.	Kent, Restigouche, Sunbury, York	17.70	13.30
3.	Carleton, Kings, St. John	16.60	17.70
4.	Albert, Madawaska, Westmorland	14.90	10.50
5.	Victoria	15.10	10.70
	Nova Scotia		
1.	Cape Breton, Digby, Inverness, Richmond, Victoria, Yarmouth	20.50	16.10
2.	Guysborough, Shelburne	18.10	13.70
3.	Annapolis, Queens	17.10	12.70
4.	Antigonish, Kings, North-west Honts	15.60	11.20
5.	Cumberland, Picton, South-West Honts, Lunenberg	13.90	9.50
6.	Elsowheat	12.40	8.00
	Prince Edward Island		
1.	Prince, Queens	17.40	13.00
2.	Kings 18.50	14.10	

APPENDIX II TECHNICAL COEFFICIENT USED IN THE ESTIMATION OF SELF-SUFFICIENCY

1 tonne of		Corn equivalents
Corn	=	1.0
Wheat	=	1.0
Barley	=	.9375
Oats	=	0.8125
Mixed grains	=	0.8750

1 head of		Grain consuming annual unit
Dairy cows	=	1.13
Beef cows	=	0.11
Bulls	=	0.45
Dairy heifers	=	0.23
Beef heifers	=	0.18
Feedlot steers/heifers	=	0.68[1]
Calves	=	0.14
Poultry	=	0.03[2]
Swine	=	0.54
Sheep	=	0.04

[1]For Ontario only, the ratio is 0.45

[2]The ratio of 0.03 for all poultry was used for 1976. For 1981, the ratios are: turkey, hens and pullets = 0.04 and all other chickens = 0.01

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